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METROPOLITAN LIFE INSURANCE COMPANY

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Postwar Marriage Trends

THE marked upsurge in marriages in the United States following the close of World War II brought the marriage rate in our country to an all-time high in 1946. The rate last year, which rose to 16.4 per 1,000 population, was about one quarter above the previous high, 13.2, established in 1942, our first year at war. It appears that our marriage rate in 1946 was higher than that for any country in the world, not alone for that year but, so far as available records reveal, for any year in the past century, with one exception—the rate in Hungary, which soared to 20.4 per 1,000 in 1919, just after World War I.

Our country was not the only one to set a new high record for itself last year. At least two other countries, widely separated geographically—New Zealand and the Netherlands—showed a similar experience. In the Netherlands, the marriage rate reached an unprecedented level of 9.7 per 1,000 in 1942, even while that country was under German domination, and after liberation the rate jumped further to 11.4 per 1,000 in 1946. In New Zealand, the marriage rate established a new high in the early years of the war, reaching 11.3 in 1940, as compared with 10.2, the previous maximum, registered in 1920; in 1946 the rate rose again to 12.3 per 1,000. In two other nations of the British commonwealth, Canada and Australia, the marriage rates increased with the coming of peace, but they did not go above the record high levels attained in the early years of the war. (See the table on the following page.)

In many other countries, too, the number of marriages showed spectacular gains following the close of hostilities in World War II, but these increases were not sufficient to surpass the records made after World War I. In Belgium, for example, the marriage rate almost doubled between 1944 and 1945, jumping from 5.4 to 10.0, and increasing further to 10.7 in 1946. Even so, the rate was still one quarter below that registered in 1920. In France, too, there was a sharp upswing in marriages after liberation, the rate rebounding from 5.3 per 1,000 in 1944 to 9.7 in 1945. Moreover, the marriage rate in 1946 rose to about 12.7, yet hardly challenging the old record of 16.0 per 1,000 made in 1920. In both these countries the recent boom in mar-

MARRIAGE RATE, PER 1,000 POPULATION, IN THE UNITED STATES AND CERTAIN OTHER COUNTRIES, 1937 TO 1946

COUNTRY	MARRIAGE RATE PER 1,000 POPULATION									
	1946	1945	1944	1943	1942	1941	1940	1939	1938	1937
United States.....	16.4	12.3	11.0	11.8	13.2	12.7	12.1	10.7	10.3	11.3
Canada.....	10.5†	8.9	8.5	9.4	10.9	10.6	10.9	9.2	7.9	7.9
England and Wales.	8.9	9.3	7.1	7.0	8.8	9.3	11.2	10.6	8.8	8.8
Scotland.....	8.9	9.4	7.2	7.4	9.2	9.3	10.6	9.2	7.8	7.7
Northern Ireland...	7.3	7.9	7.2	7.8	9.0	9.3	7.6	7.1	6.7	6.7
Irish Free State....	*	5.8	5.7	5.9	5.9	5.0	5.1	5.2	5.1	5.0
Australia.....	10.3†	8.5	9.3	9.4	12.0	10.6	11.1	9.2	9.1	8.7
New Zealand.....	12.3	10.1	8.4	7.5	7.9	8.7	11.3	11.1	10.1	9.6
Denmark.....	*	9.0	9.3	9.3	9.2	8.7	9.2	9.4	8.9	9.1
Netherlands.....	11.4	7.8	5.5	7.2	9.7	7.3	7.6	9.2	7.7	7.7
Sweden.....	9.2	9.5	9.7	9.7	9.9	9.1	9.3	9.7	9.2	8.9
Switzerland.....	*	8.1	8.0	8.3	8.6	8.5	7.7	7.5	7.4	7.3
Belgium.....	10.7	10.0	5.4	6.3	7.5	7.0	4.3	6.5	7.3	7.6
France.....	12.7	9.7	5.3	5.6	6.8	5.7	4.3	6.2	6.5	6.6
Portugal.....	*	7.6	7.4	7.3	7.5	7.1	6.0	6.5	6.6	6.4
Chile.....	7.8	7.9	8.2	8.3	8.5	8.4	8.5	9.7	8.1	8.3

*Data not available.
†Estimated

riages was due, in good measure, to the repatriation of large numbers of prisoners of war and of civilian workers who, during the war, had been sent as slave laborers to Germany and German-occupied countries. Another factor of material importance has been the rapid industrial rehabilitation of France and Belgium since their liberation.

In some countries, on the other hand, the marriage rate was lower in 1946 than in 1945. This group includes England and Wales, Scotland, Northern Ireland, Sweden, and Chile. In England and Wales, for example, the figure dropped from 9.3 per 1,000 in 1945 to 8.9 in 1946; in Sweden the corresponding decline was from 9.5 to 9.2. It should be noted, however, that in each of the countries in this group, relatively high, or even record-breaking, rates were experienced during the war years.

The outlook for the United States is that the marriage rate in 1947 will be appreciably below that for 1946, but still well above the rates for prewar years. In each of the first four months of the current year, the number of marriages has been materially below that for the corresponding period of last year. For the four-month period as a whole, marriages are about 17 percent under the figure of a year ago. Preliminary figures for Canada, France, and Belgium, the only other countries for which data relating to 1947 are at hand, likewise show a fairly marked downward trend.

School-Age Population to Reach New High

As a result of the war and the post-war boom in births, our country will have a record number of children at the school ages in the 1950's. In fact, more than 5,000,000 children will probably be added to the elementary school population of our country within the next decade. The effect of the recent rise in the birth rate is already noticeable in the lower grades of the schools, and it will be felt with increasing force in the years to come.

The number of children in the United States eligible to begin their formal education—the 6-year-old—has been increasing slowly in recent years and now totals nearly 2,500,000. Their numbers will grow to almost 2,900,000 two years hence. In 1950 and in 1951, however, the new contingents of 6-year-old will fall off somewhat—reflecting the decline in the birth rate in 1944 and 1945—but they will then resume their increase until they number nearly 3,300,000 in 1953. The latter figure is 40 percent higher than that for 1945, as may be seen in the table on the following page.

Not only the beginners, but the elementary school population as a whole—those 6 to 13 years of age—will grow very considerably in the years ahead. It is expected that this group of children will increase in number annually from the present figure of about 18,200,000 to more than 23,400,000 in 1956.

The number of children eligible to enter high school will decrease this year and next, but thereafter the trend will be reversed as increasing numbers of children attain age 14. From an estimated 2,200,000 in 1949, these children may be expected to grow almost without interruption to more than 3,200,000 in 1961. This increase will parallel the upward trend for the 6-year-old, but with a lag of 8 years. Thus, in 1953, when a peak of new admissions may be expected in the elementary schools, those eligible for high school will have increased by only 6 percent as compared with the figure for 1945. Thereafter, however, the number of children attaining age 14 will increase rapidly up to 1961, when there will be almost 50 percent more of these children than there were in 1945.

The figures presented in the table, indicating the expected trend in the school-age population, are essentially projections of survivors from past births, with an allowance for expected deaths. Further projection of the trend into the future for the three age classes would involve forecasts of the number of births expected in the years to come. Although such forecasts are not attempted here, it is almost certain that the birth rate will not continue at its current high level for any appreciable length of time, and will soon decline. Such decline, in due time, will reflect itself in a smaller number of children attaining the school ages.

In the meanwhile, it is clear that

there will be a marked increase in the school-age population in the years immediately ahead, and that the situation urgently calls for planning along practical lines in order that adequate provision be made for the education of these children. This is particularly necessary in areas where schools are already overcrowded and where, even now, there is a shortage of teachers. At the same time, there is urgent need for expanding the facilities and personnel concerned with promoting the health, safety, and general welfare of American children. To lay a sound foundation for the future welfare and security of our Nation, we must build up the physical and mental health of our young.

ESTIMATE OF SCHOOL-AGE POPULATION IN THE UNITED STATES, 1945 TO 1961

Year	Number of Children at Specified Years of Age (in Millions)			Percentage Change Since 1945		
	6	6–13	14	6	6–13	14
1945	2.33	17.64	2.18			
1946	2.36	17.82	2.16	+ 1	+ 1	— 1
1947	2.48	18.21	2.07	+ 6	+ 3	— 5
1948	2.69	18.82	2.06	+15	+ 7	— 6
1949	2.88	19.46	2.23	+24	+10	+ 2
1950	2.87	20.09	2.21	+23	+14	+ 1
1951	2.76	20.61	2.22	+18	+17	+ 2
1952	2.98	21.28	2.29	+28	+21	+ 5
1953	3.26	22.21	2.31	+40	+26	+ 6
1954		22.90	2.34		+30	+ 7
1955		23.33	2.46		+32	+13
1956		23.42	2.67		+33	+22
1957			2.86			+31
1958			2.84			+30
1959			2.74			+26
1960			2.96			+36
1961			3.24			+49

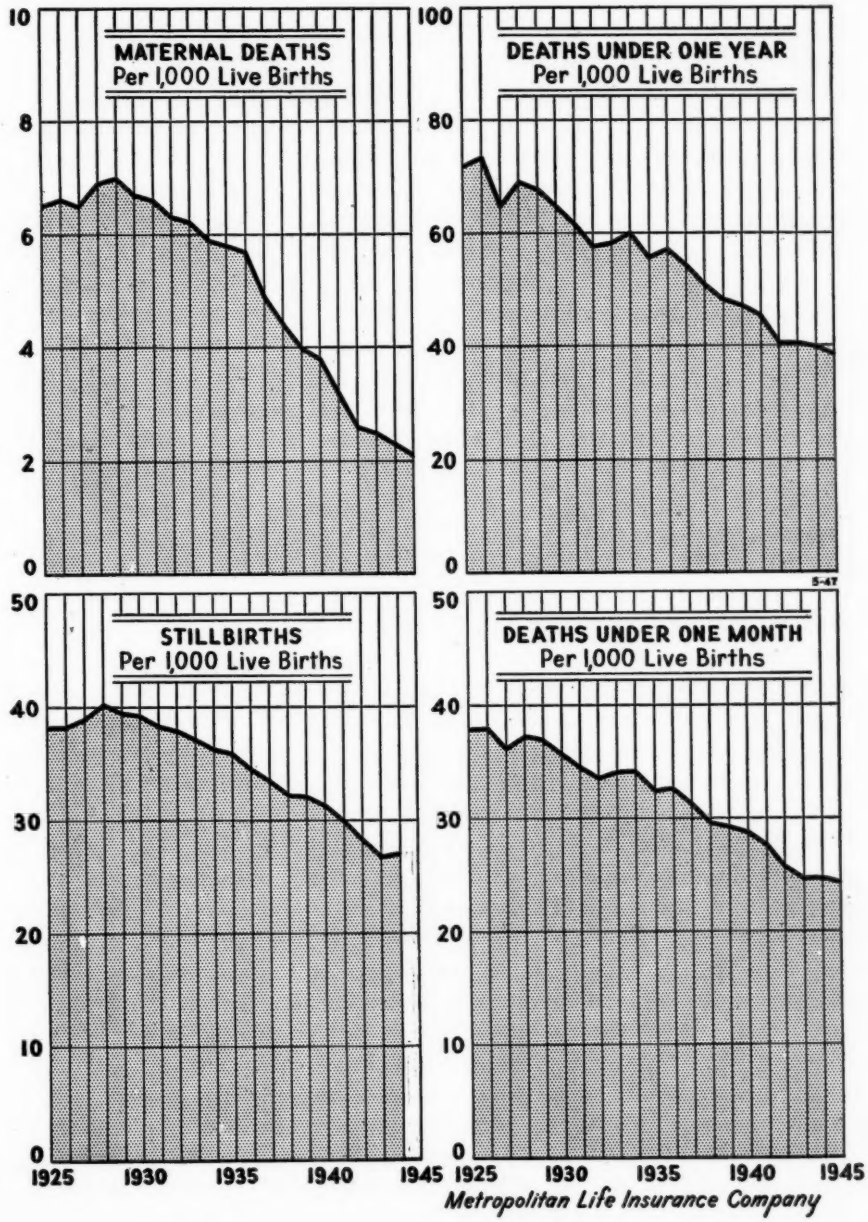
Large Reduction in Hazards of Maternity and Infancy

AMONG the outstanding achievements of medical science and public health administration in recent years have been the marked reductions in the mortality among childbearing women and among infants. The story is told graphically in the four panels of the chart on page 5, which show the trends in the past two decades for maternal mortality, stillbirths, neonatal mortality, and infant mortality.

The maternal mortality rate in our country has been reduced by more than two thirds in little more than a decade. Prior to the early

IMPROVEMENT IN MATERNAL AND INFANT MORTALITY

United States Birth Registration States 1925 to 1945



Metropolitan Life Insurance Company

1930's, the annual maternal death rate fluctuated between six and seven per 1,000 live births. By 1945 the rate had declined to 2.1, and there are definite indications that at present it is less than two per 1,000 live births.

Considerable progress has also been achieved in reducing the hazards responsible for the deaths of infants before and during delivery. The improvement in the record for stillbirths, like that for maternal mortality, is largely concentrated in the past decade. That the two trends are essentially parallel is hardly surprising in view of the direct relationship between the physical health of the mother and that of the unborn child. For many years prior to 1932, the number of stillbirths per 1,000 live births fluctuated between 38 and 40. Since that time, however, the stillbirth rate has been decreasing steadily, reaching a rate of 27 per 1,000 in 1944, the latest year for which data comparable with those for earlier years are available. Thus, the stillbirth rate declined about one quarter between 1934 and 1944, and has undoubtedly dropped still further, judging from the continued decline in maternal mortality.

Deaths among infants under 1 month of age, as the lower righthand panel of the chart shows, dropped from 37.8 per 1,000 live births in 1925, to 24.3 in 1945, a reduction of more than one third. Even greater was the decline in total infant mortality—that is, among children under one year of age, among whom the rate decreased in the same period from 71.7 per 1,000 live births to 38.3, or by 47 percent.

A number of factors have been at work to reduce maternal and infant mortality. Standards of obstetrical practice have been raised materially throughout the country. Medical schools have expanded their curricula, giving special emphasis to obstetrics and postgraduate courses in this field. As a result, the number of general practitioners who are qualified to handle maternity cases as well as the number of specialists has been greatly increased. The introduction of chemotherapy has been a very important factor in controlling infections, which have been and still are major causes of maternal mortality.

Hospitals also have taken seriously their responsibility to insure safe delivery of maternity cases by expanding and improving their facilities and by segregating obstetrical services from other hospital cases. The expansion of hospital insurance plans has been an inducement to mothers to seek such care. The proportion of hospital deliveries in the United States has risen from 37 percent in 1935 to 79 percent in 1945. In other words, the number of expectant mothers seeking hospital care has more than doubled in a decade. Credit should also be given to the efforts of voluntary and official health agencies for the important part they have played in safeguarding the lives of childbearing women and their babies. State laws requiring premarital and prenatal

examination for syphilis, and the improved methods of treating this scourge, have likewise been instrumental in reducing the toll of life among both mothers and infants before and after birth.

The Death Toll from Lightning

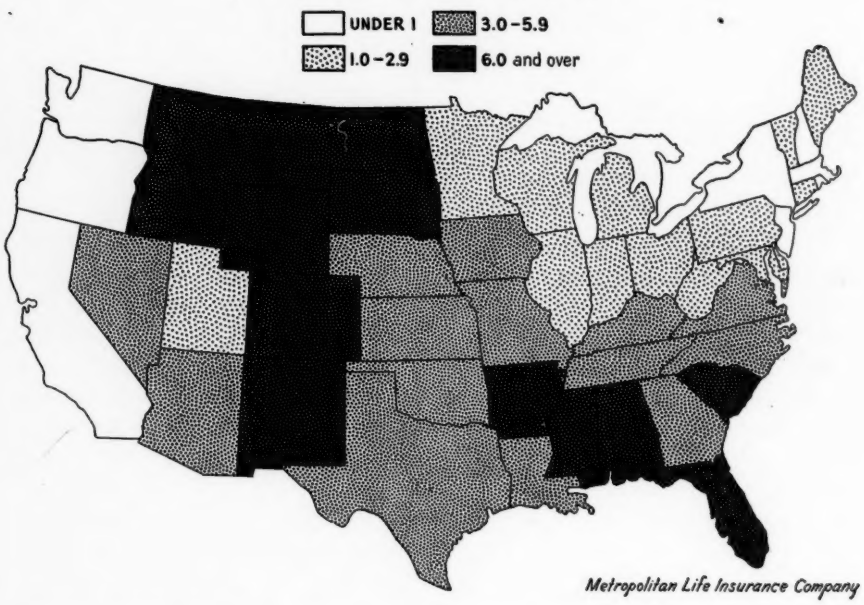
Now is an opportune time to call attention to the danger of lightning, because this hazard takes a larger toll of life in the summer months than at any other season of the year. Lightning kills around 400 persons annually in the United States, or about three in every million of the population. The probability of being fatally injured by lightning is far greater in rural than in urban areas. About nine out of every ten fatalities from this cause occur in places with 2,500 or less inhabitants, although these areas have only a little more than 40 percent of the total population. City dwellers are relatively safe, one reason being that the steel structures of the tall buildings act as lightning conductors. Moreover, persons in urban areas, when caught in a sudden thunderstorm, usually do not have far to go to reach a place of shelter. Rural dwellers, on the other hand, are more likely to be caught some distance from a safe shelter, and to find themselves a target for the electric discharge, particularly when they are on a broad plain.

As might be expected, men and boys are the chief victims of lightning, owing to their greater participation in outdoor activities, both in occupational and sport pursuits. Deaths from lightning in the United States are relatively five times as frequent among males as among females.

Many lives are lost each year because of the dangerous actions of persons caught in thunderstorms. This is evident from a study of the death claim records of persons insured in the Industrial Department of the Metropolitan Life Insurance Company, who were killed by lightning during the years 1941-1945. One third of the victims lost their lives when they sought shelter under a tree, and by so doing they increased the danger of being struck. Trees, and particularly isolated trees, because of their height, are more likely to be struck than persons; and after striking the tree, the bolt may flash sideways or, after reaching the base of the tree, it may run along the ground and strike anyone in its path. Ironically enough, a number of those killed among the insured were standing under trees only a short distance from their homes. Homes properly equipped with lightning rods afford virtually complete safety. Similarly, the metal bodies of automobiles protect the occupants, even if the vehicle is struck by lightning.

The practice of seeking refuge in small sheds, especially in exposed areas, is also dangerous. These structures are a more likely target than are individuals. In this insur-

DEATH RATES PER 1,000,000 FROM LIGHTNING
UNITED STATES 1940-1944



Metropolitan Life Insurance Company

ance experience, there are instances of men being struck in small farm barns, where they were waiting for the storm to subside. In one of these cases, the victim was struck while leaning against the wooden wall; a friend standing in the center of the barn was unharmed. Another was killed when seeking shelter in a small, isolated wooden bathhouse at a beach. The records show also that one person was killed while seeking shelter in a small ticket booth at a baseball field; the bolt struck a near-by telephone pole, and then ran along the wire to the booth. One youngster camping in a public park was fatally struck as he held on to the pole of his small tent, trying to keep the tent from being blown down; the pole was capped with a metal fixture.

Other victims tempted fate in a variety of ways. Some, caught in sudden storms while engaged in water sports, continued to swim or to row in small boats. Persons in small boats, it should be realized, are conspicuous targets, while swimmers are in danger not only of being struck directly, but also of being electrocuted by a charge carried by the water from a bolt striking at some distance. One golf caddie was killed as his group continued to play during a thunderstorm. Other men were struck while engaged in highway, bridge, or airport construction.

While both the conditions of exposure and the conduct of persons play

an important role in the mortality from lightning, it is also true that climatic conditions are the main determinant. The map on page 8 illustrates the fact that the highest rates are found in some of the Mountain States and bordering areas, including Idaho, Montana, the Dakotas, Wyoming, Colorado, and New Mexico. The rates for the general population in these States in the years 1940-1944, ranged between a high of 14.6 per million in New Mexico, and 6.5 in North Dakota and Colorado, as compared with a national average of 2.9 per million. A group of States in the southeast corner of the country also have comparatively high death rates from lightning. These States are Arkansas, Mississippi, Alabama, South Carolina, and Florida, with rates ranging between 8.6 and 6.1 per million.

Minimum rates, on the other hand, are found generally in the Pacific Coast, New England, and Middle Atlantic regions. Rhode Island, with more than 700,000 inhabitants, did not suffer a single fatality from lightning in the five years 1940-1944.

Continued Rise in Mortality from Leukemia

LEUKEMIA, a disorder of the blood and the blood-forming organs, which was considered to be a rare disease only a few decades ago, now takes a toll of more than 6,000 lives a year in the United States. This is more than five times the number of lives claimed annually by infantile paralysis, about 1½ times the combined total of the four communicable diseases of childhood (measles, scarlet fever, whooping cough, and diphtheria), and almost as many lives as are now taken by appendicitis.

In the past quarter of a century the *recorded* mortality from leukemia has been rising slowly, but more or less continuously. The death rate currently is more than double that recorded only 25 years ago. Among the white Industrial policyholders of the Metropolitan Life Insurance Company, for example, the standardized death rate from leukemia at ages 1 to 74 years increased from 1.3 per 100,000 in 1921-1925 to 3.4 in 1941-1945. Every age period in both sexes has shown a marked increase in mortality; as is evident from the table below, the rise was 100 percent or more at almost every age period. In each sex, the largest increase occurred at ages 65 to 74 years.

What factors have been instrumental in bringing about this upward trend? It is almost certain that part of the recorded increase in the death rate from leukemia is spurious, and reflects the more frequent recognition and reporting of the disease. In the past quarter century, physicians have become better qualified to diagnose leukemia and are more alert to recognize its symptoms. In addition, the development and more widespread use of improved laboratory techniques of blood testing have facilitated the

discovery of cases. From the data available to us, it is not possible to determine how much of the increase is spurious and how much of it may be real.

Leukemia is considered to be a malignant disease, and as such its death rate may properly be included with that from cancer. In this insurance experience for the period 1941-1945, the death rate from leukemia among white persons was about 4 percent of that from cancer. Furthermore, among white males, the mortality from leukemia is higher than that for cancer of any site except the digestive tract, the prostate, and the lungs; in early childhood, it exceeds the death rate from all forms of cancer combined.

As is evident from the accompanying table, the death rate from leukemia is higher among males than among females at every age period; the widest difference is in late childhood and adolescence, when the rate for males is about twice that for females. Persons afflicted with the disease, irrespective of sex or age, live only a relatively short time; to date, recovery has not been reported in any authenticated case. However, the newer methods of treatment now being tried, give some promise.

MORTALITY FROM LEUKEMIA. WHITE MALES AND WHITE FEMALES. AGES 1 TO 74 YEARS. METROPOLITAN LIFE INSURANCE COMPANY. WEEKLY PREMIUM-PAYING INDUSTRIAL BUSINESS, 1921–1925 AND 1941–1945

AGE PERIOD YEARS	AVERAGES OF DEATH RATES PER 100,000				PERCENT INCREASE 1941–1945 SINCE 1921–1925		MALE RATE AS PERCENT OF FEMALE IN 1941-1945
	White Males		White Females				
	1941–1945	1921–1925	1941–1945	1921–1925	White Males	White Females	
1 to 74*	3.9	1.7	2.8	1.1	129	155	139
1 to 4	5.1	2.4	4.4	1.3	113	238	116
5 to 9	3.3	1.2	2.4	.6	175	300	138
10 to 14	2.4	1.2	1.3	.6	100	117	185
15 to 19	3.0	1.0	1.5	.6	200	150	200
20 to 24	2.2	.7	1.5	.9	214	67	147
25 to 34	1.9	1.2	1.7	.8	58	113	112
35 to 44	2.8	1.3	2.5	1.2	115	108	112
45 to 54	5.1	2.4	4.0	1.8	113	122	128
55 to 64	9.8	3.9	7.0	2.4	151	192	140
65 to 74	15.3	4.2	9.8	1.8	264	444	156

*Death rates standardized on the basis of the Standard Million population of England and Wales, 1901.

Comparative Data on the Causes of Death Among Industrial Policyholders

The following table shows the mortality among Industrial policyholders for May 1947 and May 1946, together with the death rates for the first five months of 1947, 1946, and 1945.

DEATH RATES* PER 100,000 POLICYHOLDERS FROM SELECTED CAUSES
WEEKLY PREMIUM-PAYING INDUSTRIAL BUSINESS
METROPOLITAN LIFE INSURANCE COMPANY

CAUSE OF DEATH	ANNUAL RATE PER 100,000 POLICYHOLDERS*				
	May 1947	May 1946	Year to Date: End of May		
			1947	1946	1945
ALL CAUSES—TOTAL	747.7	702.4	773.2	826.3	918.2
—Excluding war deaths	*746.8*	*689.3*	*772.2*	*802.1*	*786.1*
Typhoid fever	0.2	0.1	0.2	0.1	0.3
Measles	.3	1.4	.2	.9	.2
Scarlet fever	—	—	‡	.2	.3
Whooping cough	.4	.4	.6	.7	.8
Diphtheria	.3	.4	.6	.7	.7
Influenza	3.5	2.4	4.7	8.4	4.6
Pneumonia (all forms)	25.1	20.4	30.5	34.6	35.3
Tuberculosis (all forms)	35.6	35.0	34.9	39.3	38.4
Tuberculosis of respiratory system	32.3	31.0	31.9	35.7	34.7
Syphilis	7.1	7.5	8.4	8.6	9.0
Acute poliomyelitis	.3	.1	.4	.2	.3
Cancer (all forms)	116.9	109.6	119.1	115.0	113.0
Diabetes mellitus	30.9	23.8	27.8	29.9	26.9
Cerebral hemorrhage	72.0	60.3	73.6	72.2	70.8
Diseases of the coronary arteries and angina pectoris	73.8	64.2	79.6	74.2	70.3
Other chronic heart diseases†	164.6	154.9	175.6	183.3	170.8
Diarrhea and enteritis	3.6	3.2	3.0	2.7	3.3
Appendicitis	3.3	1.9	2.8	3.5	4.8
Chronic nephritis	39.7	34.8	43.6	45.8	47.4
Puerperal state—total	3.4	2.8	3.2	3.0	3.7
Suicides	7.0	6.8	6.7	7.4	6.1
Homicides	3.2	3.9	3.4	3.9	2.7
Accidents—total	40.9	42.3	42.1	50.2	54.0
Home accidents	6.4	7.1	10.6	11.4	10.6
Occupational accidents	4.7	3.2	4.9	4.3	5.2
Motor vehicle accidents	13.1	13.9	14.3	15.6	12.4
War deaths (enemy action)	.9	13.1	1.0	24.2	132.1
All other causes of death	114.9	113.3	110.9	117.4	122.3

*The rates for 1947 and 1946 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†International List (1940) titles 92, 93 (c), (d), (e), and 95. ‡Less than 0.05 per 100,000.

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STATISTICAL BULLETIN
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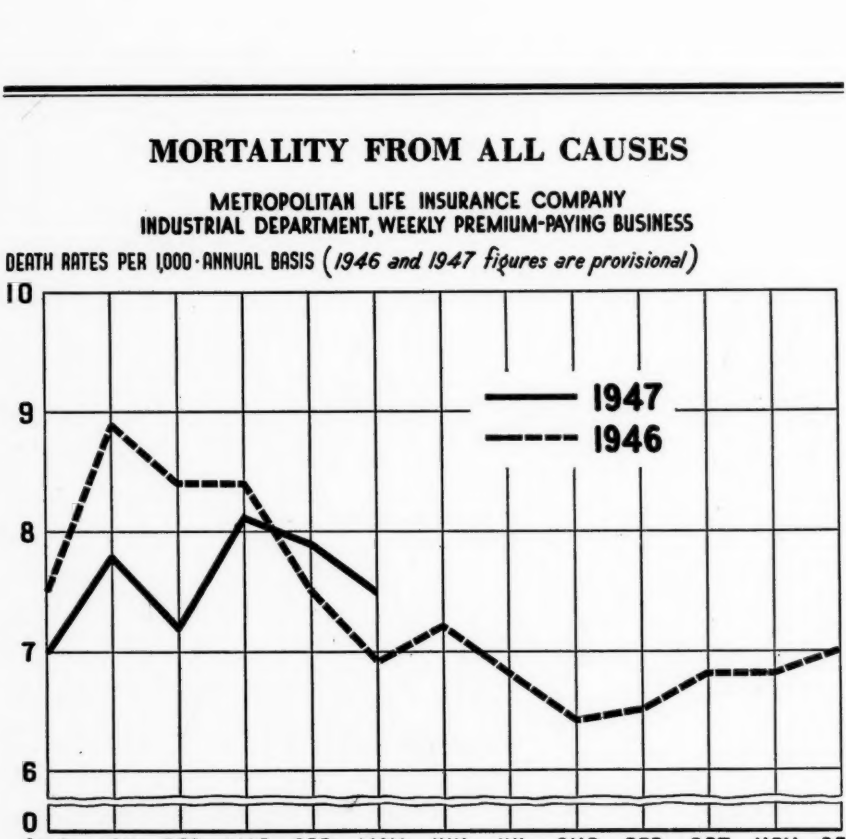
MORTALITY FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT, WEEKLY PREMIUM-PAYING BUSINESS

DEATH RATES PER 1,000 ANNUAL BASIS (*1946 and 1947 figures are provisional*)



(DEC)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1946	8.9	8.4	8.4	7.5	6.9	7.2	6.8	6.4	6.5	6.8	6.8	7.0
1947	7.8	7.2	8.1	7.9	7.5							

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